SECTION V. MAINTENANCE

15.5.1 INTRODUCTION

The PSD is an ASOS software task executing on the ACU. There are no preventive maintenance procedures for the PSD; therefore, the PSD is not maintained in the same manner as a hardware component. The only hardware component directly associated with the PSD is a memory board used for message queuing. In cases where the RTA and/or ABT is connected to the ACU via leased line modems, however, the operation of the modem(s) may need to be verified. PSD maintenance consists of verifying that the software functions of the PSD are properly performed. Because these functions require the proper operation and functioning of the memory board, RTA, ABT, and modems, the maintenance philosophy of the PSD is to isolate a potential fault to these components and/or to the connectivity between them. The proper operation of those components located within the ACU that could affect PSD functions is verified using the same standard self-test features of ASOS, as would be used to test the operation of any ASOS component, regardless of whether the PSD was installed. The following paragraphs describe the corrective maintenance procedures that should be used to monitor, verify, and, if necessary, restore and maintain performance of PSD functions.

15.5.2 PREVENTIVE MAINTENANCE

There are no preventive maintenance procedures for the PSD.

15.5.3 CORRECTIVE MAINTENANCE

15.5.3.1 **General**. Because the PSD is a transparent function in the communication path between ASOS and the RTA and between the RTA and ABT, the cause of any inability to communicate can be attributed to the PSD, ASOS, RTA, or ABT or where the RTA and/or ABT are in close proximity to the ACU, in the cables connecting the units to the ACU. The process of corrective maintenance begins with the isolation of the PSD as the cause of the problem. If possible, the RTA and ABT should be connected directly together and the technician should attempt to perform the function that is exhibiting the symptom of the problem. If the problem continues to exist, the PSD is not at fault. If the problem is in ASOS/RTA communications, and the RTA or ABT, including cables, is not at fault, the following procedures are performed to isolate and correct the problem.

15.5.3.2 **PSD Troubleshooting**.

15.5.3.2.1 **Determining SIO Board Assignments of the PSD**. When performing corrective maintenance on the PSD, the first task of the maintenance technician is to determine the SIO board assignments of the PSD as described in the following paragraphs. The SIO boards for the PSD are assigned at installation time; in order to properly diagnose a fault condition, however, the particular SIO boards assigned to the PSD must be determined as follows:

a. On OID with the 1-minute display displayed, enter REVUE-SITE-CONFG-COMMS. This sequence displays the COMMS page on the OID.

b. Locate "RTA" and "ABT" in the function column of the COMMS page.

c. Record the SIO board assignments of the RTA and ABT and verify that both are enabled and configured with the proper COMM values.

NOTE

If a leased line arrangement is used between the ACU and/or the RTA and ABT, modems are indicated in the COMMS page.

15.5.3.2.2 **Verifying ASOS Operating Condition**. The operating condition of each component should be determined using the maintenance menus as described in Chapter 2, paragraph 2.5.3. If a component failure is indicated, the component is removed and replaced in accordance with the procedures contained in Chapter 2, paragraph 2.5.4. If replacement of any component is necessary, the component should be retested to ensure proper operation. When it is established that there are no failures indicated on ASOS, the PSD should be tested using the DIAG function of the PSD as described in the following paragraph.

15.5.3.2.3 **Using the PSD Diagnostic (DIAG) Function**. The PSD DIAG function is available if there is a printer or video display unit (VDU) configured in the system. The feature is used to display or print all messages between the ASOS and the RTA or ABT. To use the PSD DIAG feature, the following steps must be performed:

a. On OID with 1-minute display displayed, enter REVUE-SITE-CONFG-COMMS. This sequence displays the COMMS page on the OID.

b. Move cursor to printer, VDU, or spare SIO port to be used to print or display messages.

c. Press CHANG and set up port as follows:

NOTE

Entries are shown in bold.

	FUNCTION	PSD DIAG	
STATUS	**ENABLED**	HANDSHAKE	**NONE**
BAUD RATE	**9600***	CONNECTION	**HARDWIRE****
PARITY SELECT	**NONE**		
BITS/CHAR	**8**		
STOP BITS	**1**		

*Baud rate of connected device
**Will indicate leased if modems are used.

d. Press EXIT. The PSD DIAG feature is now ready to display or print messages being handled by the PSD.

NOTE

When PSD corrective maintenance is complete, configure the SIO port for its original assignment.

15.5.3.2.4 **PSD Hardware Connectivity Within the ACU**. The ACU hardware signaling scheme, including the site-specific SIO boards that have been assigned to the PSD, are described and illustrated in Chapter 2, Section IV. Figure 15.4.2 illustrates the PSD hardware connectivity within the ACU.

15.5.3.2.5 **Monitoring PSD Message Traffic**. The following examples illustrate typical PSD message traffic that appears on the display or printer used as the PSD DIAG monitoring device.

EXAMPLE 1. ASOS/RTA MESSAGES

00:01:12 Received No Special Product Id: DENSAODEN from ASOS
00:01:13 Transmitting No Special Product Id: DENSAODEN to RTA
00:01:15 Received Positive Acknowledgment from RTA
00:53:13 Received Request for Product Id. DENSAODEN from ASOS
00:54:00 Transmitting Request For Product Id. DENSAODEN to RTA
00:54:01 Received Positive Acknowledgment from RTA
00:54:03 Received Reply to Request For Product Id. DENSAODEN from RTA
00:54:04 Transmitting Reply to Request For Product Id. DENSAODEN to ASOS
00:54:12 Transmitting Positive Acknowledgment to RTA

NOTE

As shown above, the PSD does not acknowledge messages received from ASOS.

EXAMPLE 2. ABT TO RTA STATUS MESSAGES

00:01:12 Received No Special Product Id. DENSAODEN from ABT
00:01:13 Transmitting No Special Product Id. DENSAODEN to RTA
00:01:14 Transmitting Positive Acknowledgment to ABT
00:01:15 Received Positive Acknowledgment from RTA

EXAMPLE 3. ABT TO RTA DATA REQUESTS

00:01:12 Received Request For Product Id. DENSAO4LJ from ABT
00:01:13 Transmitting Request For Product Id. DENSAO4LJ to RTA
00:01:14 Transmitting Positive Acknowledgment to ABT
00:01:15 Received Positive Acknowledgment from RTA

EXAMPLE 4. RTA TO ABT DATA REPLIES

00:01:12 Received Reply to Product Id. DENSAO4LJ from RTA
00:01:13 Transmitting Reply to Product Id. DENSAO4LJ to ABT
00:01:14 Transmitting Positive Acknowledgment to RTA
00:01:14 Received Positive Acknowledgment from ABT

EXAMPLE 5. RTA TO ABT UNSOLICITED MESSAGES

00:01:12 Received No Special Product Id: DENSAOAKO from RTA
00:01:13 Transmitting No Special Product Id: DENSAOAKO to ABT
00:01:15 Transmitting Positive Acknowledgment to RTA
00:01:17 Received Positive Acknowledgment from ABT

In practice, the messages shown in the examples do not follow one another directly. The device connected to the PSD DIAG port actually logs transmissions to and from the PSD in time order. The PSD manages messages concurrently to and from ASOS, the RTA, and the ABT. The log, therefore, reflects the time order of all transmissions. For example, there may be some intervening transmissions between a request for a particular product and the reply to the product requested. Multiple transmissions not acknowledged are also shown on the transmission log.

15.5.4 **FIELD REPLACEABLE UNIT (FRU) REMOVAL AND REPLACEMENT**

WARNING

Severe injury or death may result if power is not removed from the equipment prior to maintenance activities. Ensure that the output power switch is set to the zero (0) (OFF) position and that facility power is removed from the ACU.

15.5.4.1 **PSD Memory Removal and Replacement**. The only unique hardware item in the ACU that supports the PSD is the memory board installed in location 1A2A4. This board is identical to the memory board installed in the DCP in location A2A3. The corrective maintenance procedures for the two boards are identical and are described in Chapter 2, Section V.

15.5.4.2 **Modem Removal and Replacement**. One or two modems may be installed to support remote connection of the RTA and ABT. The locations and operating status of the modems can be determined by accessing the COMMS page. Removal and replacement procedures for the modem(s) are described in Chapter 2, Section V.